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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,264	09/18/2003	Richard M. Ehrlich	PANA-01046USC	5462

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EXAMINER
FIGUEROA, NATALIA

ART UNIT	PAPER NUMBER
2651	

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/665,264	EHRLICH, RICHARD M.
	Examiner	Art Unit	
	Natalia Figueroa	2651	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _13 May 2005_.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-48_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) _24 and 37-48_ is/are allowed.

6)☒ Claim(s) _1-5, 11-23 and 29-36_ is/are rejected.

7)☒ Claim(s) _6-10 and 25-28_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date 01/13/05, 05/13/05.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Terminal Disclaimer

1.   The terminal disclaimer filed on 25 May 2005 (05/25/2005) has been reviewed and is

accepted. The terminal disclaimer has been recorded.

Information Disclosure Statement

2.   The information disclosure statement (IDS) submitted on 13 January 2005 (01/13/2005)

in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure

statement is being considered by the examiner.

3.   The information disclosure statement (IDS) submitted on 13 May 2005 (05/13/2005) in

compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure

statement is being considered by the examiner.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 1-2, 11-12, 17-20, 29-30, 35, and 36 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Bliss (USPN 5,585,975) and Glover (USPN 6,108,153) and further in view of

Kao (USPN 6,816,013).

RE claim 1, Bliss discloses a disk drive system for improving servo demodulation

robustness, comprising a read channel to read a servo wedge and produce a servo signal

therefrom (abstract, fig. 1 and col. 7, lines 39-40); an amplitude measuring circuit to measure an

amplitude of the servo signal (col. 7, lines 54-55); a filter to filter the error signal and produce a

servo automatic gain control (AGC) signal therefrom (col. 7, lines 62-65); and a programmable

limiter to keep the servo AGC signal within a desired range, before the servo AGC signal is used

for feedback control (col. 9, lines 17-21). Bliss fails to explicitly teach a summer to produce an

error signal representing a difference between the measured amplitude and a target amplitude.

However, Glover discloses such on (fig. 3 and col. 10, lines 58-65). Bliss and Glover fail to

explicitly teach that the desired range includes at least one of an upper limit value and a lower

limit value. However, Kao discloses such on (fig. 1 and col. 1, lines 15-16).

     Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify the system as disclosed by Bliss and Glover with the above

teachings from Kao to include limiting values that would provide controlling of the gain, hence

avoiding error operations of the AGC.

     RE claim 2, the combination of Bliss, Glover, and Kao is relied upon for the same

reasons of rejection as stated above. Bliss further discloses that the programmable limiter limits

an output of the filter to thereby keep the servo AGC signal within a desired range, before the

servo AGC signal is provided to a variable gain amplifier (VGA) of the read channel (col. 9,

lines 17-21).

     RE claim 11, Bliss further discloses that the programmable limiter is within the filter (col.

9, lines 17-21).

     RE claim 12, Bliss discloses a disk drive system for improving servo demodulation

robustness, comprising a read channel to read a servo wedge and produce a servo signal

therefrom (abstract, fig. 1 and col. 7, lines 39-40); an amplitude measuring circuit to measure an

amplitude of the servo signal (col. 7, lines 54-55); a filter to filter the error signal and produce a

servo automatic gain control (AGC) signal therefrom (col. 7, lines 62-65); and a programmable

limiter to keep the servo AGC signal within a desired range, before the servo AGC signal is used

for feedback control (col. 9, lines 17-21). Bliss fails to explicitly teach a summer to produce an

error signal representing a difference between the measured amplitude and a target amplitude.

However, Glover discloses such on (fig. 3 and col. 10, lines 58-65). Bliss and Glover fail to

explicitly teach that the programmable limiter is external to the filter. However, Kao discloses

such on (fig. 1 and col. 1, lines 15-16).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify the system as disclosed by Bliss and Glover with the above

teachings from Kao to limiting values that would provide controlling of the gain, hence avoiding

error operations of the AGC.

RE claim 17, Bliss discloses a disk drive system, comprising a disk having servo wedges

and data fields (figs. 2a-2b); a path to condition the signal produced by the at least one head and

to produce a conditioned signal therefrom, the path including a variable gain amplifier (VGA)

(fig. 3 and col. 4, lines 58-59); a servo demodulator including a servo automatic gain controller

to adjust an amplitude of the conditioned signal by providing servo automatic gain control

(AGC) values to the VGA (fig. 3 and disclosure thereof and col. 4, lines 58-59); and a

programmable limiter to keep the servo AGC values within a desired range (col. 9, lines 17-21).

Bliss fails to explicitly teach a disk drive system comprising a head disk assembly including at

least one head to read the servo wedges and data fields and to produce a signal representative of

information stored in the servo wedges and data fields. However, Glover discloses such on (fig.

1 and col. 4, lines 11-24). Bliss and Glover fail to explicitly teach that the desired range includes

at least one of an upper limit value and a lower limit value. However, Kao discloses such on

(fig. 1 and col. 1, lines 15-16).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify the system as disclosed by Bliss and Glover with the above

teachings from Kao to limiting values that would provide controlling of the gain, hence avoiding

error operations of the AGC.

RE claim 18, the combination of Bliss, Glover, and Kao is relied upon for the same

reasons of rejection as stated above. Kao further discloses hat the desired range includes an

upper limit value and a lower limit value (fig. 1 and col. 1, lines 15-16).

RE claims 19-20, Bliss, Glover, and Kao are relied upon for the same reasons of

rejections as stated in the above rejections of claims 1-2. Claims 19-20 have limitations similar

to those treated in the above rejections of claims 1-2, and are met by the references as discussed

above. Claims 19-20 however also recite the following limitations; a phase measuring circuit

and a phase locked loop. However, Bliss further discloses such on (col. 3, lines 40-49).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify the system as disclosed by Bliss and Glover with the above

teachings from Kao to include a timing error signal circuit hence providing information on the

servo signal therefore adjusting the amplitude of the signal as required hence avoiding errors.

RE claim 29, Bliss further discloses that the programmable limiter is within the filter (col.

9, lines 17-21).

RE claim 30, Bliss, Glover, and Kao are relied upon for the same reasons of rejections as stated in the above rejections of claim 19. Claim 30 has limitations similar to those treated in the above rejections of claim 19, and is met by the references as discussed above. Claim 30 however also recites the following limitation; wherein the programmable limiter is external to the filter. However, Bliss further discloses such on (col. 3, lines 40-49). However, Kao discloses such on (fig. 1 and col. 1, lines 15-16).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system as disclosed by Bliss with the above teachings from Kao to limiting values that would provide controlling of the gain, hence avoiding error operations of the AGC.

Re claim 35, Bliss, Glover, and Kao are relied upon for the same reasons of rejections as stated in the above rejections of claim 17. Claim 35 has limitations similar to those treated in the above rejections of claim 17, and is met by the references as discussed above. Claim 35 however also recites the following limitations; a phase locked loop including an oscillator. However, Bliss discloses such on (col. 3, lines 40-49).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system as disclosed by Bliss and Glover with the above teachings from Kao to include a disk assembly containing a timing adjusting circuit, hence adjusting the frequency as desired to avoid errors.

RE claim 36, the combination of Bliss, Glover, and Kao is relied upon for the same reasons of rejection as stated above. Kao further discloses hat the desired range includes an upper limit value and a lower limit value (fig. 1 and col. 1, lines 15-16).

6.   Claims 13-16 and 31-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bliss in view of Kao.

RE claim 13, Bliss discloses a disk drive system for improving servo demodulation

robustness, comprising a filter to filter an amplitude error signal and produce a servo automatic

gain control (AGC) signal therefrom (col. 7, lines 62-65); and a programmable limiter to keep

the servo AGC signal within a desired range, before the servo AGC signal is used for feedback

control (col. 9, lines 17-21). Bliss fails to explicitly teach that the desired range includes at least

one of an upper limit value and a lower limit value. However, Kao discloses such on (fig. 1 and

col. 1, lines 15-16).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify the system as disclosed by Bliss with the above teachings

from Kao to limiting values that would provide controlling of the gain, hence avoiding error

operations of the AGC.

RE claim 14, the combination of Bliss and Kao is relied upon for the same reasons of

rejection as stated above. Bliss discloses that the programmable limiter limits an output of the

filter to thereby keep the servo AGC signal within a desired range, before the servo AGC signal

is provided to a variable gain amplifier (VGA) of a read channel (col. 9, lines 17-21).

RE claim 15, Bliss further discloses that the programmable limiter is within the filter (col.

9, lines 17-21).

RE claim 16, Bliss discloses a disk drive system for improving servo demodulation

robustness, comprising a filter to filter an amplitude error signal and produce a servo automatic

gain control (AGC) signal therefrom (col. 7, lines 62-65); and a programmable limiter to keep

the servo AGC signal within a desired range, before the servo AGC signal is used for feedback

control (col. 9, lines 17-21); wherein the programmable limiter limits an output of the filter to

thereby keep the servo AGC signal within a desired range, before the servo AGC signal is

provided to a variable gain amplifier (VGA) of the read channel (col. 9, lines 17-21). Bliss fails

to explicitly teach that the programmable limiter is external to the filter. However, Kao discloses

such on (fig. 1 and col. 1, lines 15-16).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify the system as disclosed by Bliss with the above teachings

from Kao to limiting values that would provide controlling of the gain, hence avoiding error

operations of the AGC.

RE claim 31, Bliss discloses a disk drive system for improving servo modulation

robustness, comprising a filter to filter an amplitude error signal and produce a servo phase lock

loop (PLL) signal therefrom; and (col. 7, lines 62-65); and a programmable limiter to keep the

servo PLL signal within a desired range, before the servo PLL signal is used to adjust an

oscillator (col. 9, lines 17-21). Bliss fails to explicitly teach that the desired range includes at

least one of an upper limit value and a lower limit value. However, Kao discloses such on (fig. 1

and col. 1, lines 15-16).

Therefore, it would have been obvious to one having ordinary skill in the art at the time

the invention was made to modify the system as disclosed by Bliss with the above teachings

from Kao to limiting values that would provide controlling of the gain, hence avoiding error

operations of the PLL.

RE claim 32, the combination of Bliss and Kao is relied upon for the same reasons of

rejection as stated above. Bliss discloses that the programmable limiter limits an output of the

filter to thereby keep the servo PLL signal within a desired range (col. 9, lines 17-21).

RE claim 33, Bliss further discloses that the programmable limiter is within the filter (col.

9, lines 17-21).

RE claim 34, Bliss discloses a disk drive system for improving servo modulation

robustness, comprising a filter to filter an amplitude error signal and produce a servo phase lock

loop (PLL) signal therefrom; and (col. 7, lines 62-65); and a programmable limiter to keep the

servo PLL signal within a desired range, before the servo PLL signal is used to adjust an

oscillator (col. 9, lines 17-21); wherein the programmable limiter limits an output of the filter to

thereby keep the servo PLL signal within a desired range (col. 9, lines 17-21). Bliss fails to

explicitly teach that the programmable limiter is external to the filter. However, Kao discloses

such on (fig. 1 and col. 1, lines 15-16).

7.   Claims 3-5 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Bliss, Glover, Kao, and further in view of Cloke et al (USPN 6,487,032), hereinafter Cloke.

RE claim 3, the combination of Bliss, Glover, and Kao is relied upon for the same

reasons of rejection as stated above. Bliss, Glover, and Kao fail to explicitly teach a plurality of

heads, and wherein the desired range is dependent at least in part on which head is being used to

read a servo wedge.

However, Cloke discloses such on (col. 5, lines 7-8 and 13). Therefore, it would have

been obvious to one having ordinary skill in the art at the time the invention was made to modify

the system as disclosed by Bliss and Glover with the above teachings from Cloke hence

providing the right frequency for each head, hence avoiding errors.

RE claim 4, Cloke further discloses a zone bit recorded disk including a plurality of zones, and wherein the desired range is dependent at least in part on which zone is being read (col. 11, lines 51-55, col. 11, line 63-col. 12, line 10).

RE claim 5, claim 5 has limitations similar to those treated in the above rejections of claims 3 and 4, and are met by the references as discussed above.

RE claims 21-23, the combination of Bliss, Glover, Kao, and Cloke is relied upon for the same reasons of rejection as stated in the above rejections of claims 3-5. Claims 21-23 have limitations similar to those treated in the above rejections of claims 3-5, and are met by the references as discussed above. Claims 21-23 however also recite the following limitation; a phase locked loop. However, Bliss further discloses such on (col. 3, lines 40-49).

Allowable Subject Matter

8.   Claims 6-10, and 25-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9.   Claims 24, and 37-48 are allowed.

10.   The following is an examiner's statement of reasons for allowance:

RE claim 24, the prior art of record, and in particular Bliss (USPN 5,585,975) fails to teach or suggest a system comprising a filter to filter the error signal and produce a servo phase lock loop (PLL) signal therefrom; and a programmable limiter to keep the servo PLL signal within a desired range, before the servo PLL signal is used to adjust a frequency of an oscillator; wherein the filter includes an integration path that includes a further programmable limiter that is used to prevent integral windup.

RE claim 37, the prior art of record, and in particular Bliss (USPN 5,585,975) fails to teach or suggest a system comprising a path to condition the signal produced by the at least one head and to produce a conditioned signal therefrom; a servo demodulator including a servo automatic gain controller to adjust an amplitude of the conditioned signal; a register to store an automatic gain control (AGC) value for the servo automatic gain controller; and a microprocessor to replace the AGC value stored in the register with a value within a desired range, when the AGC value stored in the register is outside the desired range.

RE claim 43, the prior art of record, and in particular Bliss (USPN 5,585,975) fails to teach or suggest a system comprising a path to condition the signal produced by the at least one head and to produce a conditioned signal therefrom; a servo demodulator including a servo phase lock loop used to control timing within the path; and a register for storing a servo phase lock loop (PLL) value for the servo phase lock loop; and a microprocessor to replace the servo PLL value stored in the register with a value within a desired range, when the PLL value stored in the register is outside the desired range.

11.   Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

12.   Applicant's arguments with respect to claims 1-5, 11-23 and 29-36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

13.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

14.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Natalia Figueroa whose telephone number is (571) 272-7554.

The examiner can normally be reached on Monday - Thursday 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David R. Hudspeth can be reached on (571) 272-7843. The fax phone number for

the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

NFM

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